

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Smith, et al.

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Title: METHODS AND MIXTURES FOR TREATING DISTRESSED TREES

Art Unit: 3643

Examiner: Gellner

Hon. Commissioner of Patents
Box Fee Amendment
Washington, D. C. 20231.

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I hereby state that on reasonable information and belief, I expect that this Express Mail correspondence will be deposited with the U.S. Postal Service as U.S. ~~first class mail~~ with sufficient postage, in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231, on the date indicated below.

17/6/03
Signature

June 26, 2003
Date

Si Taylor Gellner

Printed Name

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AFFIDAVIT

WHEREAS, the undersigned,

I, Dr. Don W. Smith, resident of 2107 Emerson Lane, Denton, Denton County, Texas 76209, citizen of the United States of America, having invented certain new and useful improvements in METHODS AND MIXTURES FOR TREATING DISTRESSED TREES, do hereby state that :

Exhibit F

Regarding claims rejections:

1. The claim made by the patent office that our application is obvious is rebutted by the following.
 - a. We are dealing with **Arboreal Encroachment**. None of the prior art mentioned by the USPTO objections mentions or addresses arboreal encroachment. Arboreal encroachment is the physical intrusion into the root zone of trees. This is seen in the following ways:
 - 1). Driving on the soil of the tree root zone with heavy machinery causes **compression shearing**. The effect is to cause the soil to flex and to compact because of the movement of heavy wheels over the soil surface. This flexing and compaction causes compression shearing of some roots and physically dislocates others. This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree. In addition the encroachment not only destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area.
It also causes **soil compaction**, leaving a lowered access to oxygen and water.. In addition the compaction not only destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area. This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree..
 - 2). **Cutting into the soil** to establish a sidewalk or a street: This severs roots and imposes a severe shock to the physiology of the root system. This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree. The encroachment not only destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area.
 - 3). **Paving over the surface** in the root zone of a tree: This seals off the root system from available sources of water and oxygen. This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree. In addition the encroachment not only destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area.
 - 4). **Building a home or other building over part of a tree's root system**: This gives the tree lowered access to oxygen and water. This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree. In addition the encroachment not only destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area.
 - 5). **Parking under a tree**: This causes the soil to flex and to compact because of the movement of heavy wheels over the soil surface. This flexing and compaction breaks some roots and physically dislocates others. It also compacts the soil, leaving a lowered access to oxygen and water. This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree. In addition the encroachment not only destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area.
 - 6) **Flooding of the tree root zone**: Flooding of the tree root zone occurs frequently with new construction. The construction activities change water flow and often cause pooling of water in areas where it previously had adequate drainage. This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree. In addition the encroachment not only

destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area.

7). **Severe drought:** This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree. In addition the encroachment not only destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area.

8) **Thermal insult.** Buildings rob a tree of cooling breezes and reflect heat that increases the ambient temperature of the local environmental niche. This oven effect increases water loss and increases the need for water uptake just as the tree has lost part of its water gathering capacity. This physical assault causes cell division in the root tips to decline, an effect that is often fatal to a tree. In addition the encroachment not only destroys some roots but changes the root-soil dynamic and results in a decrease in total root surface area.

b. The argument that our treatment is obvious is not supported by the facts. Transplanting trees has been done for more than a thousand years. Drilling holes with a water jet has been used in fertilizing trees at least 40 years. IBA and NAA have been on the market for 40 years. In the 40-plus years no one has come up with our unique combination of techniques to treat **arboreal encroachment** in trees. No one has even proposed a treatment for arboreal encroachment in trees. If the connection were obvious as claimed by USPTO surely someone in the 40 years would have come up with the treatment. The only thing obvious is, no one has proposed to do what we do. Therefore our combination of treatment and method is novel.

c. Physically induced distress in the form of **arboreal encroachment** is qualitatively and quantitatively different from nutritional distressed referred to by USPTO. For cases of arboreal encroachment the effect on the plant is different, the treatment is different, and the final outcome of the tree is different. In nutritionally stressed trees, the life of the tree usually not in jeopardy. The tree simply looks poorly and grows poorly because it is lacking in ingredients necessary for normal growth. With arboreally encroached trees, the tree is on a course of decline that leads to death if it is not treated. Cell division declines in the root tips, production of root hairs declines, and the tree cannot pick up sufficient water and minerals from the soil to support the existing leaves. As the root declines in total surface area it will support fewer leaves. Fewer leaves will support fewer roots and the cycle of fewer roots-fewer leaves-fewer roots-fewer leaves continues until the tree dies. Our combination of ingredients and method of treatment is unique, therefore novel, and is the only treatment that will reverse the trend of decline in leaf and root surface area and cause the tree to return to full growth and health. No one else has come up with this treatment regime. Our treatments are an improvement not found in prior art and therefore novel.

d. Our method of getting the proper elements to the root system was developed with experimentation, not from looking at the patents mentioned by USPTO and reasoning to a conclusion. We tried numerous combinations and methods of treatments until we hit upon one that would work. Over the years we have changed the chemicals used and the method of delivery of the novel combination of chemicals and delivery method. In fact we are still experimenting with and improving ways to accomplish the same result, so we are still in an experimental stage of development. This further reinforces our contention that we have devised a novel method of rescuing trees from arboreal encroachment.

e. We have treated over 2000 trees since filing the patent application. More than 90% have survived and are flourishing. In untreated trees, virtually 100% die. Our method and formula for treating

arboreal encroachment is both efficacious and novel. No one else in the market place is doing or even offering what we do.

2. Our claim of novel treatment is supported by the following:

- a. We are treating arboreal encroachment that results in mechanically induced decline. This is not mentioned in prior art, so our claims are that we address a unique circumstance. This makes our treatment and method novel.
- b. We are using an improved method of administering of the mixture using numerous application sites that accomplish reasonably even distribution of our mix. This results in a strong and immediate physiological response by the tree. The numerous and regularly distributed holes we drill into the soil retain the treatment against runoff, contain it below competing vegetation for a timely long term release and diffusion into the soil. The method also improves aeration of the root system and improves distribution of water to the root system.
- c. The numerous holes drilled by the water jet systematically perforates compacted soil and provides improved water access to the tree roots. This insures that most intact and otherwise accessible roots are treated.
- d. We continually improve our formula. We started with a mix of fertilizer and powdered IBA. We now dissolve the IBA in a solvent and apply it to the fertilizer so that it is absorbed into the fertilizer granule. This effects a time release and a more uniform distribution of the IBA and basic nutrients every time the tree gets water. It provides an ongoing and long term treatment effect. Our current mixture does not separate during storage and handling as did the mixture of powder and fertilizer granules. We have experimented with as much as 1000 times the original concentration of IBA.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

The Commissioner is hereby authorized to charge any fees or credit any overpayment to Deposit Account Number 23-2426 of WINSTEAD SECHREST & MINICK P.C.

If the Examiner has any questions or comments concerning this paper or the present application in general, the Examiner is invited to call the attorney for the undersigned, James J. Murphy at (214) 745-5374.

Inventor's signature:

State of TEXAS § Don W. Smith
 § Dr. Don W. Smith
County of Denton §

Before me, Barbara Coker, a notary public, on this day personally appeared Don W. Smith, known to me to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same for the purposes and considerations therein expressed.

Given under my hand and seal on the 24th day of June, 2003.

Barbara Coker

Notary Public Signature

Barbara Coker

Notary Public Printed Name

